# Crestron **CNXVGA**
## Expanded Video Adapter
## Operations Guide

**CRESTRON**
REMOTE CONTROL SYSTEMS

# Contents

# Expanded Video Adapter: CNXVGA

---

## Description

### Functional Description

The CNXVGA is an expanded video graphic adapter (or scan converter) made for use with Crestron's VT-3500 and VT-3500L video touchpanels. With the addition of a CNXVGA any VT-3500/L becomes a cost effective computer graphic or multimedia touchpanel.
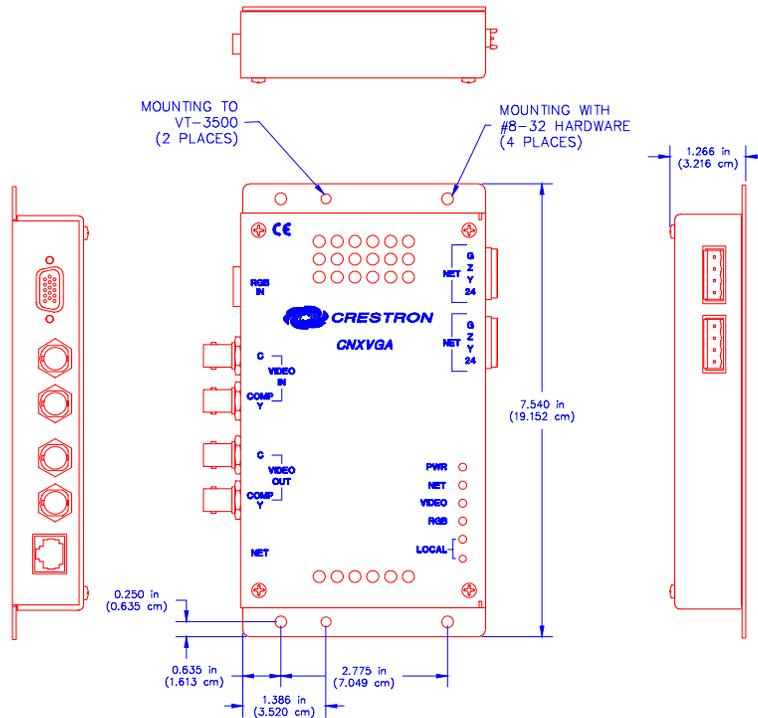
The CNXVGA accepts RGB video in standard DOS, VGA, SVGA, XGA, and MAC formats (from 640 x 480 to 1024 x 768 resolution) and outputs either composite or S-Video. Maximum rate with defined resolution is XGA at 72 Hz. Higher rates are available at lower resolution. The unit works with RGBHV and RGBS.

The CNXVGA has network adjustable parameters for each video format identified. Flash memory in the unit stores the parameters for up to 25 formats. A single external recessed button is used to cycle between the RGB port and video port.

### Physical Description

The CNXVGA, shown on the next page, is housed in a black enclosure with a silk-screened top panel. The high density 15-pin female RGB IN, four coaxial cable ports for VIDEO IN and VIDEO OUT, and an 8-position RJ45 (for **VT-3500 only**) modular jack is located on one side of the unit. Two 4-pin network connectors are located on the opposite side. Five LEDs are located on the top panel to provide the unit's status. Below the LEDs, there is a single button used for local control. At the shorter sides of the CNXVGA, the enclosure extends to form feet at a right angle to the side. There are three holes per foot for inserting screws when mounting to a VT-3500L or stabilizing the device on a flat surface when connected to a VT-3500.

---

*CNXVGA Physical Views*



## CNXVGA Ports

A number of ports are provided on the side panels of the CNXVGA. Refer to the descriptions of each below.

### RGB IN

This DB15 female connector accepts RGB video in standard (DOS, VGA, SVGA, XGA) and MAC formats with resolution from 640 x 480 to 1024 x 768. Refer to the pinout table below.

*RGB IN Pinout*

| PIN | DESCRIPTION | | PIN | DESCRIPTION |
|-----|-------------|---|-----|-------------|
| 1 | RED | | 9 | NC |
| 2 | GREEN | | 10 | GND |
| 3 | BLUE | | 11 | NC |
| 4 | NC | | 12 | NC |
| 5 | GND | | 13 | HSYNC/COMPOSITE SYNC |
| 6 | GND | | 14 | VSYNC |
| 7 | GND | | 15 | NC |
| 8 | GND | | | |

NC = Not Connected

### VIDEO IN

These two BNC connectors connect to a video source for composite or S-Video. Connect the "COMP Y" input to a luminance signal and the "C" input to a chrominance signal of an external S-Video source. For composite video use the "COMP Y"input only.

The input impedance on both BNC connectors is 75 ohms. The "COMP Y" input is rated for a signal 1.0 Vp-p. The "C" input is rated for a signal 0.28 Vp-p.

### VIDEO OUT

These two BNC connectors connect to the two VIDEO port connectors of the VT-3500L for composite or S-Video. These connectors should not be used if the CNXVGA is connected to the VT-3500.

The load impedance on both BNC connectors is 75 ohms. The "COMP Y" output is a luminance or composite signal, 1.0 Vp-p. The "C" output is the chrominance signal, 0.28 Vp-p.

**NOTE:** The video output is configured for S-Video from the factory to provide the best result from the scan converter. Make sure the VT-3500 or VT-3500L that is connected is configured to accept S-Video through the on-screen setup menus.

**TIP:** If the application requires the video output to be composite rather than S-Video, a single internal jumper can configure the CNXVGA to output the scan-converted image as a composite signal. Refer to "Special Applications" on page 5 for details.

**NET**

There is an 8-position, 8-pin RJ45 connector on one side of the CNXVGA that connects to the VT-3500 directly. This connector should not be used if the CNXVGA is connected to the VT-3500L.

There are two 4-pin network connectors on the opposing side. The dual network connectors are pass through. One connector connects to the CRESNET control network. The other connects to the VT-3500L (if this VideoTouch configuration is used) or to other Crestron equipment (if the VT-3500 is connected and daisy chaining additional devices is necessary).

## CNXVGA Indicators

A number of indicators are provided on the top panel of the CNXVGA. Refer to the descriptions of each below.

**PWR (Power)**

This LED illuminates when power is applied to the CNXVGA.

**NET**

This LED illuminates when there is network activity involving the CNXVGA.

**VIDEO**

This LED illuminates when the internal multiplexer is set to display the composite or S-Video source.

**RGB**

This LED illuminates when the internal multiplexer is set to display the RGB source.

**LOCAL**

This LED illuminates when the CNXVGA is under local control.

## CNXVGA Local Button

A single recessed button is used to cycle between RGB and video.

# Leading Specifications

The table below provides a summary of leading specifications for the CNXVGA. Dimensions and weight are rounded to the nearest hundredth unit.

*Leading Specifications of the CNXVGA*

| SPECIFICATION | DETAILS |
|---|---|
| Power Requirements | 24 VDC, network power; 7.5 Watts |
| Maximum Rate | XGA at 72 Hz |
| Flash Memory | Stores parameters for up to 25 formats |
| Default Network ID | 38 |
| CNXVGA Firmware | Version 1.26 or higher |
| SIMPL Windows | Version 1.21.04 or later |
| CNX Operating System | Version 5.01.00 or later |
| CNX Monitor | Version 2.00 or later |
| CNMS, CNRACK, CNLCOMP Operating System | Version 3.16.08 or later |
| ST-CP Operating System | Version 4.00.29 or later |
| ST-CP Monitor | Version 1.29 or later |
| Dimensions | Height: 7.54 in (19.15 cm)<br>Width:   4.16 in (10.57 cm)<br> - excluding connectors<br>Depth:  1.27 in (3.22 cm) |
| Weight | 0.47 lb  (0.21 cm) |

As of the date of manufacture, the unit has been tested and found to comply with specifications for CE marking.

$$C \in$$

**NOTE:**  This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:  (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

# Installation

## Equipment

The CNXVGA is provided without any connecting cables; they must be purchased separately. Here are some suggested cable accessories for CNXVGA applications.

*Suggested Cables for the CNXVGA*

| CONNECTION PORT | MANUFACTURER | MODEL | DESCRIPTION |
|---|---|---|---|
| RGB IN | Extron | VGA-M6'HR | 15-pin HD VGA Male to VGA Male |
| RGB IN | Extron | SYVGA/XGA | VGA Male to 5 BNCs |

## Special Applications

The CNXVGA ships preconfigured to convert all RGB input signals to an S-Video output. Some applications require the RGB input signals to be converted to a composite video output.

For example, consider an application where a computer image is provided to the CNXVGA. A composite video output signal is required so that it can be sent to the video switcher where the signal can be made available to multiple places as a video source. The block diagram below represents the aforementioned application.

*Example Application of the CNXVGA*
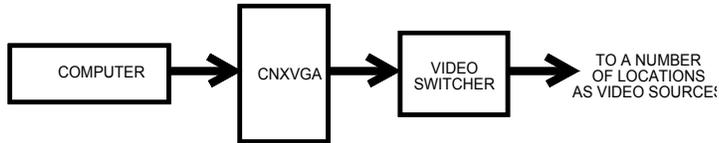


Changing the output format is easy; simply move the position of a single internal jumper. Complete the following steps to remove the CNXVGA cover and reconfigure the video output signal to provide composite video. The only tools required are a Phillips tip screw driver and grounding strap.

**CAUTION:** The CNXVGA contains electrostatic sensitive devices (ESD); observe precautions for handling ESDs to avoid damaging the unit.

1. Place CNXVGA on a flat surface.

2. Remove four screws and four washers that secure cover to the unit.

*Location of Four Screws and Washers on the CNXVGA*
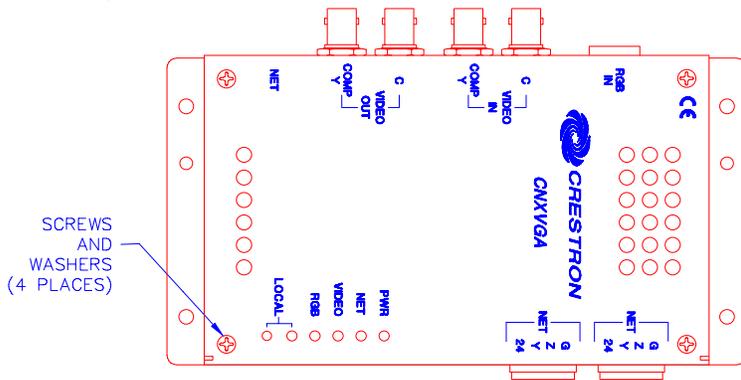


3. Remove cover and locate jumper (J9).

4. The default setting for the CNXVGA has the jumper covering pins 2 and 3 (lower two pins as shown in illustration on the next page). Reposition jumper to cover pins 1 and 2 (upper two pins).

*Jumper Location and Pin Positions*
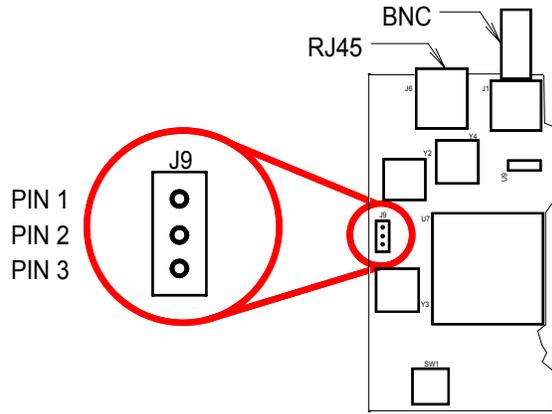


5. Replace cover onto CNXVGA and secure with four scews and four washers.

# Preparation for Use

Connections to the CNXVGA vary slightly depending on whether the unit is being used with a VT-3500 or VT-3500L. Refer to the two hookup diagrams after this paragraph. Other than making the power connection last, complete the connections in any order.

**NOTE:** Before making any connections, review latest revision of network interconnection drawing (Doc. 5411) when making connections to the port labeled NET.

*CNXVGA Hookup Connections with VT-3500*
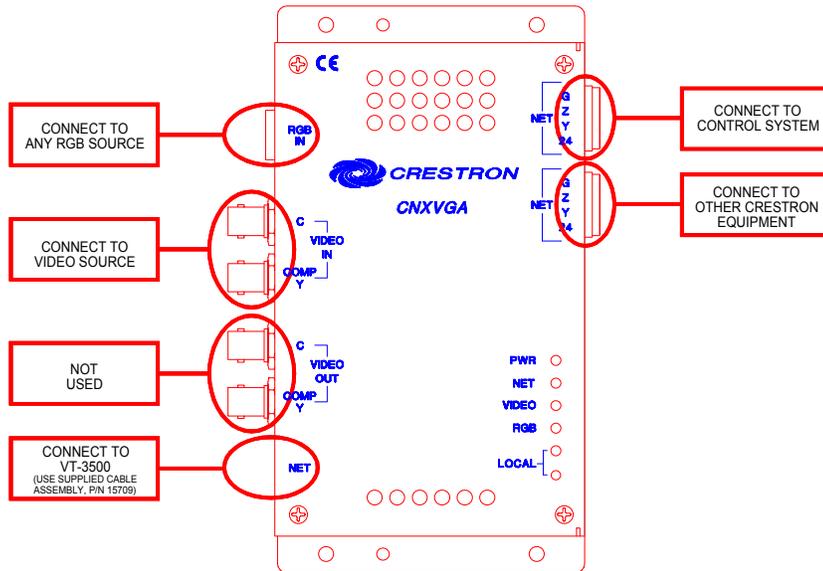


The CNXVGA has been specifically designed to replace the VT-3500IMC when connected to the VT-3500. Use four screws (#8-32, not supplied) to stabilize the CNXVGA to a flat surface.

**NOTE:** When connecting the CNXVGA to the VT-3500L, it may be useful to add a right angle adapter (part number 351A505, BoMar or equivalent, not supplied) to the BNC connectors of the VT-3500L, labeled VIDEO. Doing so, may make installation of the unit into tight locations easier.

*CNXVGA Hookup Connections with VT-3500L*
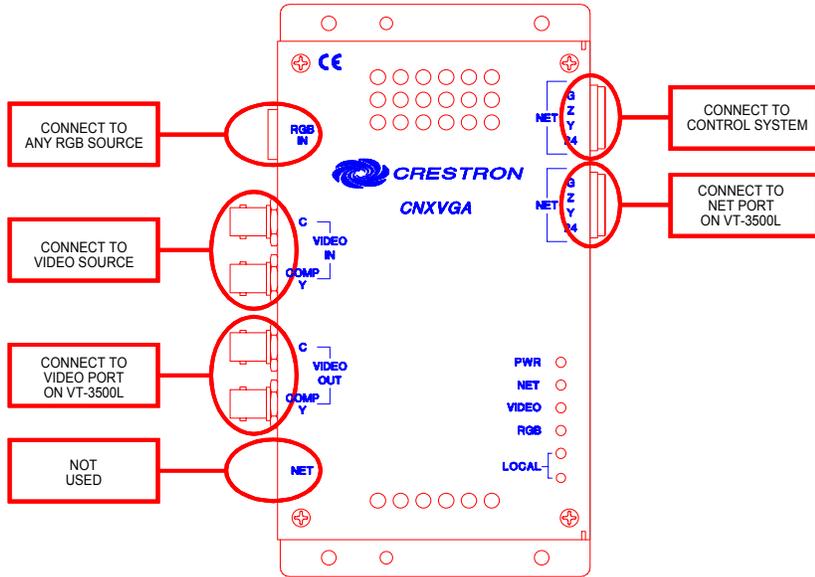


The only tool required to mount the CNXVGA to the VT-3500L is a Phillips tip screwdriver. As shown after this paragraph, the CNXVGA can be mounted directly onto the back side of a VT-3500L using two screws that are already attached to the touchpanel.

*Mounting the CNXVGA to a VT-3500L*
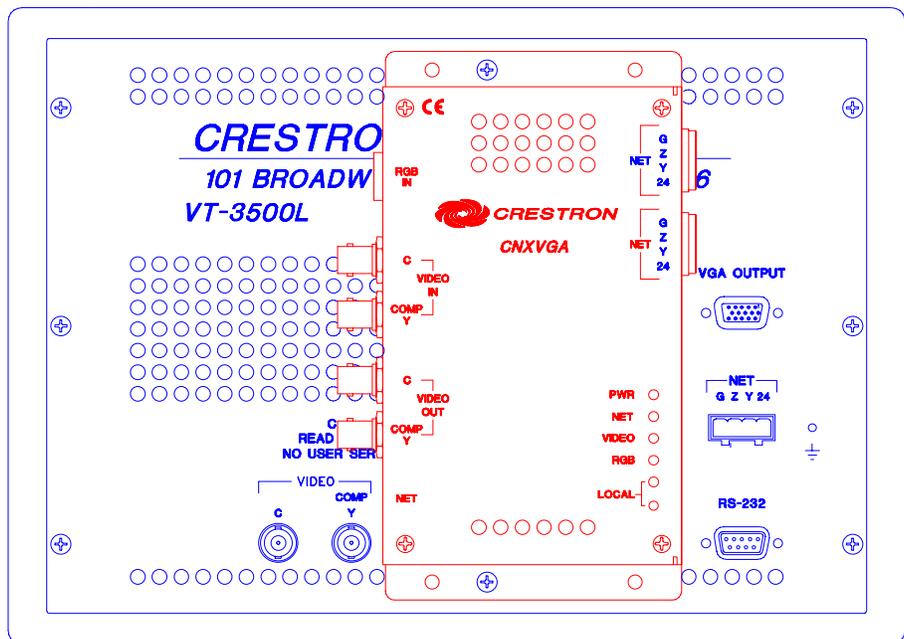
## Identity Code

Every equipment and user interface within the control system network requires a unique identity code (NET ID). These codes are recognized by a two-digit hexadecimal number from 03 to FE. The NET ID of each CNXVGA has been factory set to 38.

If the application requires it, there are several ways to change the NET ID of a CNXVGA in the control system using the PC via VisionTools™ Pro or SIMPL™ Windows®. Complete the following steps to change the NET ID.

1. Disconnect all network devices from the control system, except for the one CNXVGA that needs to have its NET ID code changed.

2. Select **Tools | ViewPort** to open the "Crestron Performance Viewport" dialog box.

3. Select **Functions > Set Network ID**. The software checks the baud rate and then opens the "Set Network ID" dialog box.

*"Set Network ID" Dialog Box*



4. Notice the list of current network devices in the dialog box. Highlight the CNXVGA.

5. The NET ID of the CNXVGA (default NET ID is 38) appears in the box below the list. Use the scroll arrow to assign another NET ID.

6. When the newly assigned NET ID appears, select the **Set ID** button to initiate the change.

7. The software responds with a successful message to confirm the new NET ID.

8. To verify this procedure, select **Diagnostics | Report Network Devices**. Confirm that the CNXVGA has a new NET ID code.

9. Reconnect other network or modular devices that were disconnected in step 1.

# Programming with SIMPL™ Windows®

SIMPL (Symbol Intensive Master Programming Language) is an easy-to-use programming language that is completely integrated and compatible with all Crestron system hardware. The objects that are used in SIMPL are called symbols. SIMPL Windows offers drag and drop functionality in a familiar Windows® environment.

SIMPL Windows is Crestron Electronics' software for programming Crestron control systems.  It provides a well-designed graphical environment with a number of workspaces (i.e., windows) in which a programmer can select, configure, program, test, and monitor a Crestron control system.

The next two subsections describe a sample SIMPL Windows program that utilizes the CNXVGA. The first subsection details how the sample program works with a textual description. The second subsection provides a broad description of how to actually create the SIMPL Windows program.

**NOTE:**  The following description assumes that the reader has knowledge of SIMPL Windows. If not, please refer to the extensive help information provided with the software.

**NOTE:**  There is no need to recreate the sample touchpanel or SIMPL Windows program. A copy of each is available from Crestron's ControlCD (version 5.1 and later). Search for or CNXVGA2.VTP and CNXVGA2.SMW projects in the SIMPL Windows Example Base directory.

**NOTE:**  SIMPL Windows v1.21.04 or later and CNXVGA firmware v1.26 or higher are required to program a control system containing the newly improved CNXVGA symbol. This new CNXVGA symbol must replace the CNXVGA symbol in programs created with earlier versions. The out-dated CNXVGA symbol appears in updated programs with a "CNXVGA OLD" heading. Keep in mind that inputs and outputs to the old and new CNXVGA symbol are not directly compatible and older programs may need to be reworked.

## How the Program Works

The example program demonstrates how to use the CNXVGA and its associated functions within a system.  The core program is based around the network definition for the CNXVGA.  The following is a brief explanation of the CNXVGA network definition implementation.

### CNXVGA Input Parameters

**RGB, Video, Out_disable:**  The **RGB** and **Video** are used to select which input source should be displayed on the output using a momentary activation on the input. **Out_disable** can be used to "mute" the output and is typically driven off a toggle.

**In_Adj, Out_Adj:**  The input adjust allows the user to position and size each RGB image to best fit within the boundaries of the display. The **Out_Adj** is not typically needed when you use the CNXVGA to display on either the VT-3500 or VT-3500L touchpanels. If some other display device is used, it may be necessary to define the visible area of the screen. The **Out_Adj** allows adjustments to be made. All incoming signals and presets stored after making the adjustment will conform to the

new output settings. For the adjustments to take place the CNXVGA must be in the RGB mode and one of these two inputs must be held high.

**Up, Down, Left, Right Width+, Width-, Height+, Height-, Save_Settings:** These parameters only affect the selected aforementioned functions (either **In_Adj** or **Out_Adj**). These parameters make a single step adjustment for every positive transition on the corresponding input. Once the desired image is obtained, asserting a signal on the Save_Settings input stores the parameters into the preset memory location indicated by **Preset#**.

**In_Recenter, Out_Recenter:** When used in conjunction with either **In_Adj** or **Out_Adj**, respectively, these functions allow the CNXVGA to try resyncing to the incoming signal while in adjustment mode. This is typically needed if adjustments are made and the image can no longer be viewed. This process provides a "best guess" starting point for adjustments based on the detected incoming signal. **Out_Recenter** simply restores factory settings of **Out_Adj** for the VT-3500.

**Autodetect_Off:** The CNXVGA is set to auto detect all incoming signals by default. In the case of a stand-alone application this is needed to sense the incoming signal and adjust to its parameters on the fly. If an application program requires discrete preset selections, **Autodetect_Off** should be held high.

**Preset_1 Through Preset_25, Clear_Preset:** To use discrete preset selections, **Autodetect_Off** must be low. **Clear_Preset** can be used to erase all of the settings in the selected preset memory.

### CNXVGA Output Parameters

**RGB_On, Video_On, Preset_Empty:** These are true feedback indicators from the CNXVGA indicating the output selection and current selected memory status.

**Preset#, Vfreq, Hfreq:** These are analog parameters that provide an indication of the currently selected preset memory location as well as the horizontal and vertical input frequencies that are currently detected.
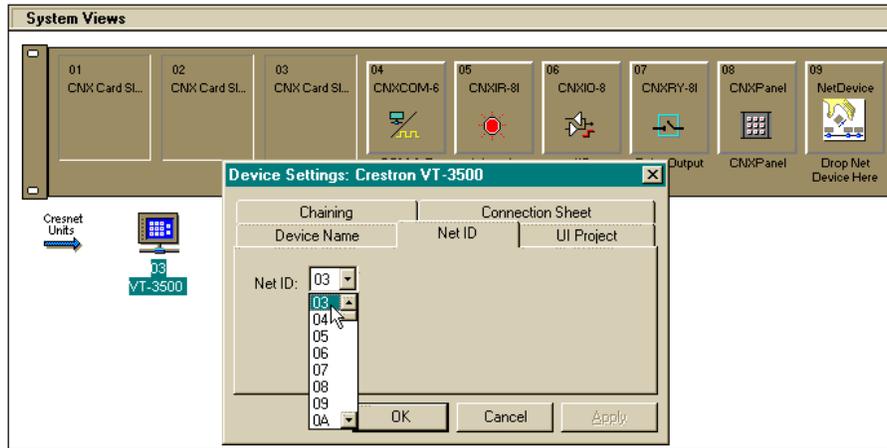
## How to Create the Program

### Configuration Manager

Use the Configuration Manager workspace (**Project | Configure System**) in SIMPL Windows to select and configure all the devices that need to be included into the system. For this example, add a CNXVGA to the system. Also add a VT-3500 to the system; its NET ID must be set to 03, shown on the next page.

---

**NOTE:** SIMPL Windows v1.21.04 or later and CNXVGA firmware v1.26 or later are required to program the CNXVGA. If using an earlier version of either, Crestron recommends an upgrade of both. The latest versions can be obtained from the Software Downloads page of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

---

*System View of VT-3500 in SIMPL Windows' Configuration Manager*



As mentioned earlier, all CNXVGAs are factory set with the NET ID set to 38. However, in SIMPL™ Windows®, the default can be changed while adding a CNXVGA to the control system. In the *System Views* area of the Configuration Manager, the CNXVGA NET ID can be altered in the "Device Settings" dialog box, shown below. To obtain the dialog box, right mouse click on the CNXVGA icon in the *System Views* area and select **configure**. Chose the *NET ID* tab.
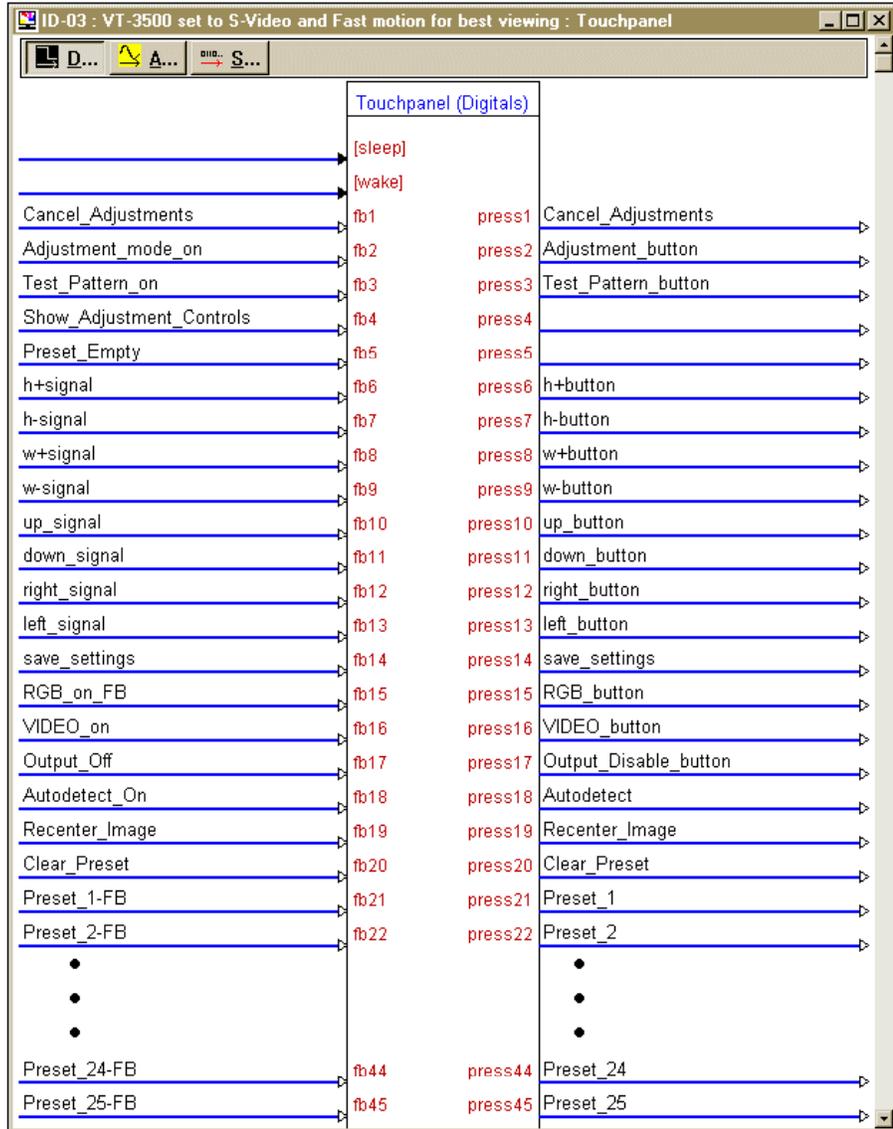
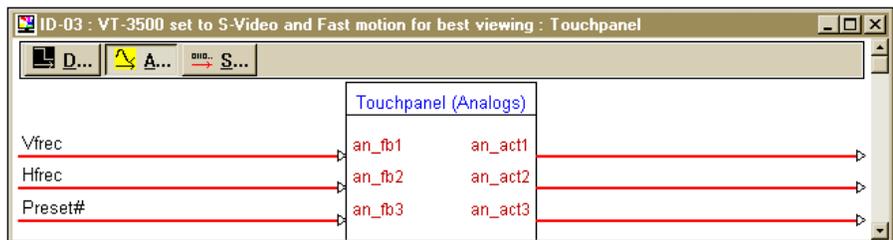*"Device Settings" Dialog Box in SIMPL Windows*
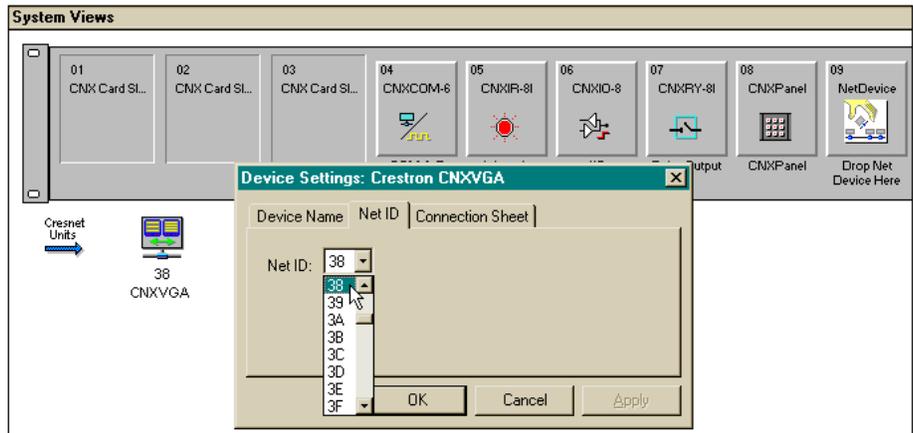


## Programming Manager

Use the Programming Manager workspace (**Project | Program System**) in SIMPL Windows to select symbols and assign their respective signals. For this example, a touchpanel and CNXVGA symbols were added automatically when the devices were added to the system in the Configuration Manager workspace. Expand the Network Modules folder and double click on the touchpanel for a detail view (alternatively CTRL+D or drag and drop into Detail View). Assign digital and analog signals to the touchpanel as shown on the next page.

*Detail View of Digital Signals for the Touchpanel in SIMPL Windows' Programming Manager*

```
ID-03 : VT-3500 set to S-Video and Fast motion for best viewing : Touchpanel

   D...    A...    S...

                              Touchpanel (Digitals)

                              [sleep]

                              [wake]

   Cancel_Adjustments         fb1        press1  Cancel_Adjustments
   Adjustment_mode_on         fb2        press2  Adjustment_button
   Test_Pattern_on            fb3        press3  Test_Pattern_button
   Show_Adjustment_Controls   fb4        press4
   Preset_Empty               fb5        press5
   h+signal                   fb6        press6  h+button
   h-signal                   fb7        press7  h-button
   w+signal                   fb8        press8  w+button
   w-signal                   fb9        press9  w-button
   up_signal                  fb10       press10 up_button
   down_signal                fb11       press11 down_button
   right_signal               fb12       press12 right_button
   left_signal                fb13       press13 left_button
   save_settings              fb14       press14 save_settings
   RGB_on_FB                  fb15       press15 RGB_button
   VIDEO_on                   fb16       press16 VIDEO_button
   Output_Off                 fb17       press17 Output_Disable_button
   Autodetect_On              fb18       press18 Autodetect
   Recenter_Image             fb19       press19 Recenter_Image
   Clear_Preset               fb20       press20 Clear_Preset
   Preset_1-FB                fb21       press21 Preset_1
   Preset_2-FB                fb22       press22 Preset_2
            •                                          •
            •                                          •
            •                                          •
   Preset_24-FB               fb44       press44 Preset_24
   Preset_25-FB               fb45       press45 Preset_25
```

*Detail View of Analog Signals for the Touchpanel in SIMPL Windows' Programming Manager*

```
ID-03 : VT-3500 set to S-Video and Fast motion for best viewing : Touchpanel

   D...    A...    S...

                              Touchpanel (Analogs)

   Vfrec                      an_fb1     an_act1
   Hfrec                      an_fb2     an_act2
   Preset#                    an_fb3     an_act3
```

From the expanded Network Modules folder double click on the CNXVGA (alternatively CTRL+D or drag and drop into Detail View). Assign signals as shown below.

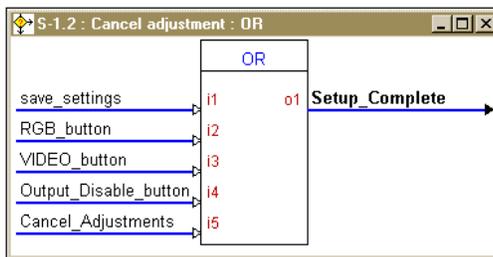*Detail View of the CNXVGA in SIMPL Windows' Programming Manager*
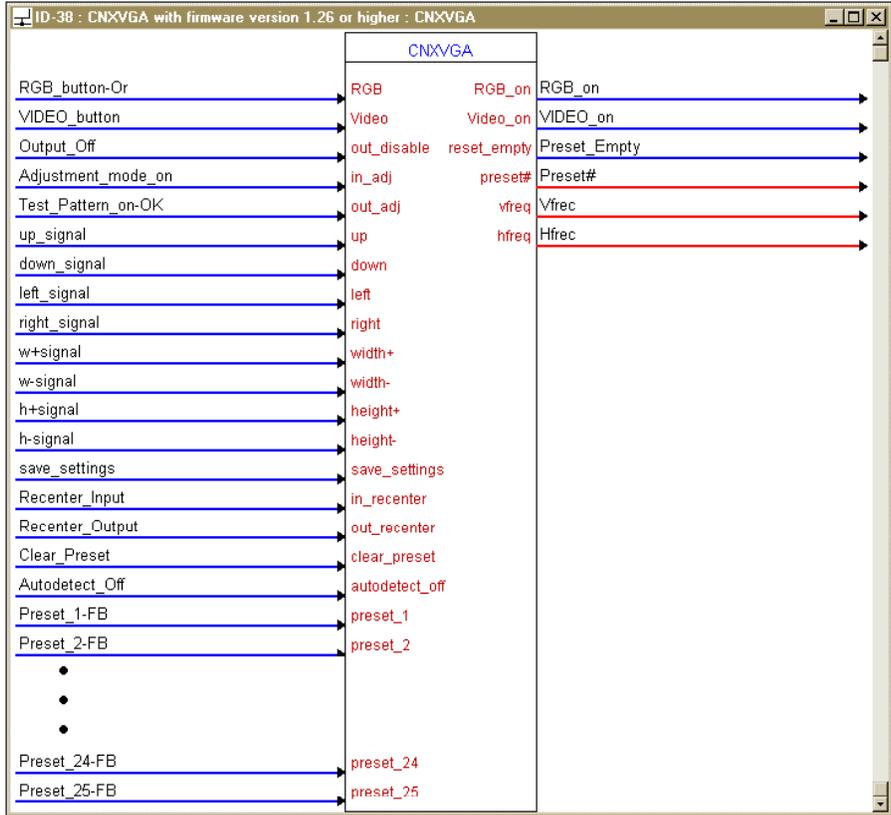


Expand the Logic folder to display the numerous symbols integrated into this program. View each of the 17 symbols in detail view (alternatively CTRL+D or drag and drop into Detail View). Assign signals as shown below and on subsequent pages.
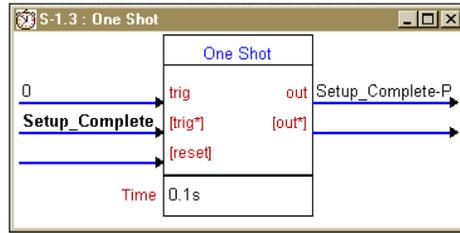
*Detail View of an OR (S-1.1) in SIMPL Windows' Programming Manager*
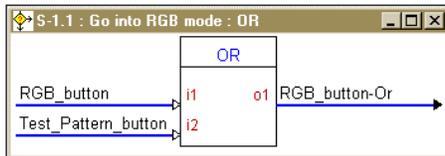


*Detail View of an OR (S-1.2) in SIMPL Windows' Programming Manager*

*Detail View of a One Shot (S-1.3) in SIMPL Windows' Programming Manager*



*Detail View of a Toggle (S-1.4) in SIMPL Windows' Programming Manager*
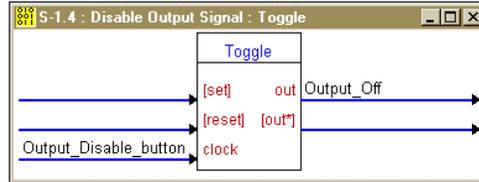


*Detail View of an OR (S-1.5) in SIMPL Windows' Programming Manager*
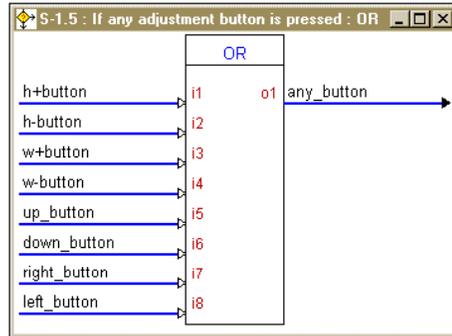


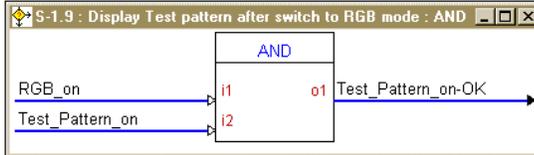*Detail View of an Oscillator (S-1.6) in SIMPL Windows' Programming Manager*
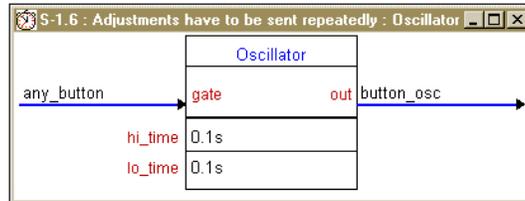


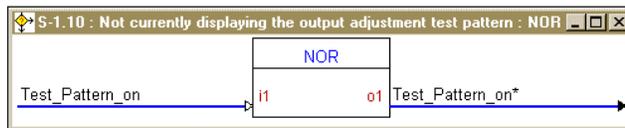*Detail View of a Buffer (S-1.7) in SIMPL Windows' Programming Manager*
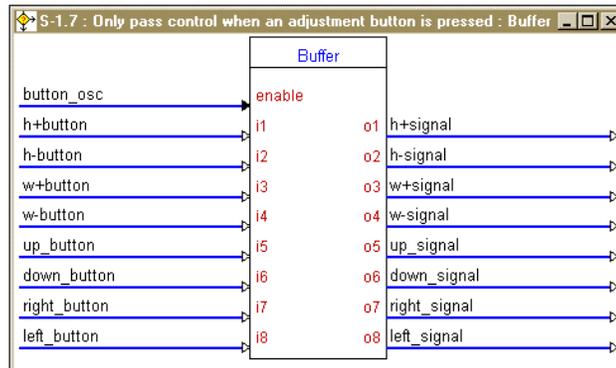
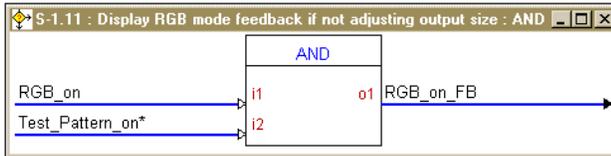*Detail View of an Interlock (S-1.8) in SIMPL Windows' Programming Manager*
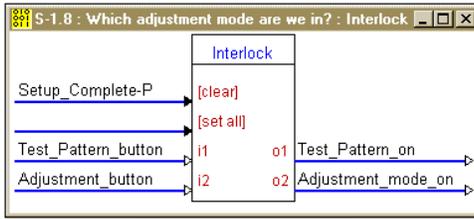


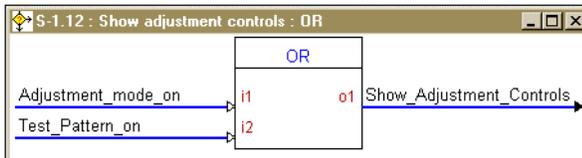*Detail View of an AND (S-1.9) in SIMPL Windows' Programming Manager*



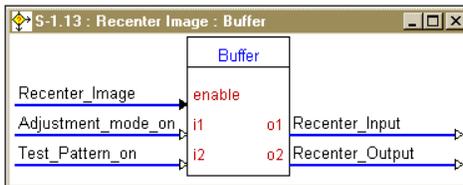*Detail View of a NOR (S-1.10) in SIMPL Windows' Programming Manager*



*Detail View of an and (S-1.11) in SIMPL Windows' Programming Manager*
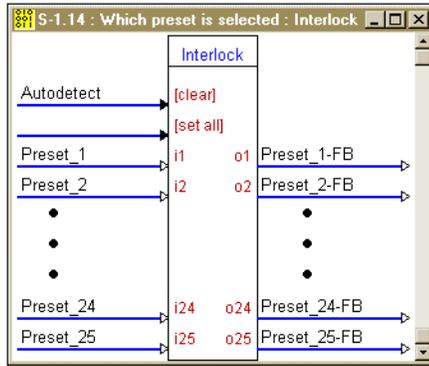


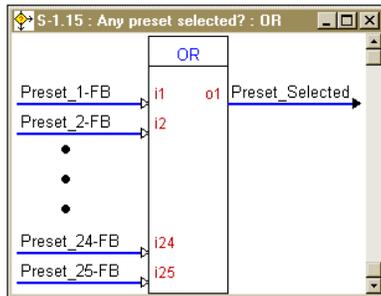*Detail View of an OR (S-1.12) in SIMPL Windows' Programming Manager*



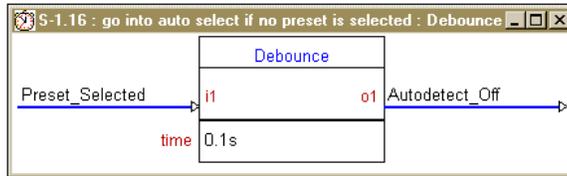*Detail View of a Buffer (S-1.13) in SIMPL Windows' Programming Manager*

*Detail View of an Interlock (S-1.14) in SIMPL Windows' Programming Manager*

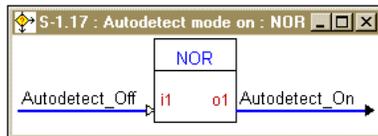

*Detail View of an OR (S-1.15) in SIMPL Windows' Programming Manager*



*Detail View of a Debounce (S-1.16) in SIMPL Windows' Programming Manager*



*Detail View of a NOR (S-1.17) in SIMPL Windows' Programming Manager*

# Problem Solving

## Troubleshooting

The table below provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron technical support representative.

*CNXVGA Toubleshooting*

| TROUBLE | POSSIBLE CAUSE(S) | CORRECTIVE ACTION |
|---|---|---|
| Touchpanel display is dark. | Backlight timeout has elapsed. | Touch screen to reactivate. |
| | Screen brightness is improperly set. | Enter SETUP MODE and alter screen brightness from the Setup Menu. |
| | CNXVGA is not receiving power. | Confirm that power is supplied. |
| | CNXVGA is not wired properly. | Verify correct wiring to all connectors. |
| | CNXVGA is not set to display the desired input. | If CNXVGA is **NOT** under Cresnet control depress the local button to switch to the correct input. Otherwise, use control system to select RGB or video source. |
| | CNXVGA ID is not set to match the NET ID in the SIMPL program. | Enter Performance Viewport and poll the network. Verify that the NET ID for the CNXVGA is properly set to match the SIMPL program. |
| Adjustments do not stretch image to the full height of the screen. | Input signal uses low-resolution DOS format (less than 480 lines). | Can not be corrected with adjustments to CNXVGA. Must use higher resolution. |
| Image garbled or unstable. | Scan rate of the input signal is too high. | Lower vertical refresh rate. Do not exceed 72 Hz for XGA resolution. |
| Displayed signal has moving or stationary noise bars. | Interference or noise. | Relocate the CNXVGA away from any electromechanical devices. |
| | | Relocate cable connecting the CNXVGA to the VT-3500 so that it is not near power feeds or other noise generating sources. |
| Output is only black and white for RGB output source. | Output display is not showing S-Video signal. | Use Setup menu to adjust the touchpanel to properly display S-Video. |
| | | If display is not a touchpanel and can only show a composite signal, change internal jumper to composite setting. Refer to "Special Applications" on page 5. |

## Further Inquiries

If after reviewing this Operations Guide for the CNXVGA, you cannot locate specific information or have questions, please take advantage of Crestron's award winning technical support team by calling:

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876] or 1-201-767-3400.

- In Europe, call Crestron International at +32-15-50-99-50.

- In Asia, call Crestron Asia at +852-2341-2016.

- In Latin America, call Crestron Latin America at +5255-5093-2160.

- In Australia, call Crestron Pacific at +613-9480-2999.

For local support from exclusive Crestron factory-trained personnel in New Zealand call Amber Technologies at +649-410-8382.

# Return and Warranty Policies

## Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.

2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, Cresskill, N.J., or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.

3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

## CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.

**Trademark Information**
*All brand names, product names, and trademarks are the sole property of their respective owners. Windows is a registered trademark of Microsoft Corporation. Windows95/98/Me/XP and WindowsNT/2000 are trademarks of Microsoft Corporation.*